

Memorandum

Environmental Resources Management

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To: Tim Anglin, BASF Elyria
From: Mike Rectanus
Date: May 9, 2016
Subject: North End Rotary Calciner No. 1 (P006)



Rotary Calciner No. 1 located in Building No. 26 is a permitted emission unit (P006) with an allowable particulate matter (PM) emission limit of 2.13 lb/hr (PTI Permit No. P0119072, dated August 24, 2015). It is ERM's understanding that BASF is considering processing a family of products in P006 that has the potential to generate nitrogen dioxide (NO_x) emissions during the calcination process. Processing the NO_x-generating raw materials associated with this family of products is considered a change in the method of operation for this emission unit. As such, BASF must determine whether the change in the method of operation is considered a modification of the emission unit under Ohio Administrative Code (OAC) 3745-31-02, which would require a permit-to-install (PTI) be obtained prior to processing this family of materials in P006.

As defined in OAC 3745-31-01, "modify" or "modification" means: Any physical change in, or change in the method of operation of any air contaminant source that results in an increase in the allowable emissions or results in an increase in emissions of greater than the *de minimis* levels of any type of air contaminant not previously emitted. Therefore, BASF must evaluate whether processing the subject family of products in P006 would result in 1) an increase in the allowable emissions or 2) an increase in emissions of greater than the *de minimis* levels. If either of these criteria is met, the change in the method of operation is considered a modification and a PTI must be obtained prior to modifying the source.

The allowable PM emission rate for P006 (2.13 lb/hr) is based on a 750 lb/hr process weight rate (i.e., the maximum operating capacity of P006 for any product) and the equation associated with Table I in the appendix to OAC 3745-17-11(B)(1). The largest process weight rate for the subject family of products is less than 750 lb/hr. Therefore, there is no increase in allowable emissions associated with the subject family of products, and the change in the method of operation does not satisfy the modification criteria of an increase in allowable emissions.

OAC 3745-15-05 identifies the *de minimis* levels of an air contaminant source as less than 10 pounds per day of PM, sulfur dioxide, NO_x, organic compounds, carbon monoxide, lead or any other air contaminant [OAC 3745-15-05(B)] or 1 ton per year of any one hazardous air pollutant (HAP) or combination of HAPs [OAC 3745-15-05(C)(5)]. As previously described, NO_x is the only type of air contaminant associated with this family of product not previously emitted by other products processed in P006. Therefore, NO_x is the only air contaminant that must be evaluated for a potential emissions increase greater than the *de minimis* emissions threshold.

Potential emissions for *de minimis* level comparisons are the amount of emissions of an air contaminant which would be emitted from a source during a 24-hour calendar day or calendar year basis, whichever is applicable, if that source were operated at its maximum rated capacity without the use of air pollution control equipment. For NO_x, the only application *de minimis* rate is the daily rate. Based on data collected through emissions and raw material testing, emission calculations were completed to determine the potential uncontrolled NO_x emissions generated by the subject family of products. Attachment 1 provides the detailed emission calculations. These calculations show that the potential emissions at the maximum production rates exceed the daily *de minimis* level. Therefore, BASF must obtain a PTI to modify P006 prior to processing the subject family of products at the maximum production rates.

In lieu of obtaining a PTI, or during the time prior to permit issuance, BASF has the option of processing the family of products at a production rate that would result in an increase in “actual emissions” less than the *de minimis* level [OAC 3745-15-05(D)], as long as records are maintained that are adequate to demonstrate that actual emissions from the source did not exceed 10 lb/day of NO_x. As identified in Attachment 1, actual daily NO_x emissions will be less than 10 lb/day when the maximum hourly (assuming 24 hours of operation per day) or daily production rates of the subject family of products are no greater than 350 lb/hr or 8,424 lb/day, respectively.

The *de minimis* demonstration on an actual basis can be accomplished by maintaining records that show that emissions from the source did not exceed 10 pounds of NO_x during each day the subject family of products is calcined in P006. As provided in OAC 3745-15-05(E), records consisting of the following types of information will be adequate to demonstrate actual emissions are maintained below the *de minimis* level:

- A narrative description of how the emissions from the source were determined and maintained at or below the daily exemption level, and, for emissions of hazardous air pollutants, at or below the annual exemption level.
- A description of all production constraints required for the source to comply with the exemption levels.
- Records of actual operations that demonstrate that the daily and annual emissions from the source were maintained at or below the exemption level by the use of the necessary production constraints or pollution control equipment.

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These records must be maintained at the facility for a period of 2 years following the recording of the information, and shall be provided, upon request, to the Ohio EPA.

In conclusion, BASF will need to obtain a PTI prior to processing the subject family of products at hourly production rates greater than 350 lb/hr or daily production rates greater than 8,424 lb/day. However, BASF can process the subject family of products at production rates less than these values, as long as records are maintained that adequately demonstrate the actual NO_x emissions from the calcination process do not exceed 10 lb/day.